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ABSTRACT

Since spring 1995, the Army III Corps at Fort Hood and the Texas A & M University System have collaborated to deliver distance learning courses to the military and their family members at Ft. Hood. Also, Ft. Hood has a leading role in the Army's transition to a worldwide distance learning development and delivery program. The effectiveness of distance learning as a way to meet the higher educational needs of Texas residents in the informational age is reviewed. Also reviewed is the importance of recognizing and meeting diverse student needs and providing adequate faculty support for the design and delivery of quality distance learning courses. (Contains 20 references.) (Author/KC)

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Ft Hood and the Texas A&M University System: Collaboration and Distance Learning

ED 422 461

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III Corps and Ft Hood

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Since spring 1995 III Corps and Ft Hood and the Texas A&M University System have collaborated to deliver distance learning courses to the military and their family members at Ft Hood. Also, Ft Hood has a leading role in the Army's transition to a world-wide distance learning development and delivery program. The effectiveness of distance learning as a way to meet the higher educational needs of Texas residents in the information-age is discussed. Also discussed is the importance of recognizing and meeting diverse student needs and providing adequate faculty support for the design and delivery of quality distance learning courses.

Ft Hood, located at the edge of Killeen, Texas, and home to some 42,000 soldiers plus their family members, has a need for quality higher education delivered on-site. Tarleton State University, located in Stephenville, Texas, has a mission to provide quality higher education to students located in their service area. Both organizations have a need and commitment to utilize their resources effectively and efficiently to meet these needs.

Collaboration Between III Corps and Ft Hood and the Texas A&M University System

The collaboration between III Corps and Ft Hood and the Texas A&M University System is important for three significant reasons. First, the U. S. Army is a learning organization. Meeting the challenges of today and tomorrow requires a highly educated, well-trained armed force. Education is viewed as a means to building a force capable of performing tomorrow's highly technical and complex tasks. Educational achievement is valued and rewarded.

Second, the Texas A&M University System has a strong commitment to meeting the educational needs of the residents of Texas. This is evidenced by their willingness to provide higher education in a format and at a location needed by those residents. As the needs of the residents of Texas have been changing (e.g., lifelong learners, workplace as an educational receiving site, format of scheduling and delivery to meet unique needs of the military student) so has the design and delivery of higher education—without a sacrifice to the quality and content of the material provided.

Third, as indicated by Sherron and Boettcher (1997), "national learning needs of the information-age worker by the year 2000 are a challenge that must be met by each state" (p. 1). Dolence and Norris (as cited by Sherron and Boettcher, 1997) are quoted as estimating that,

> the amount of learning required by every information-age worker by the year 2000 will be equivalent to that currently associated with thirty credit hours of instruction every seven years. This level of learning requirements will translate into the equivalent of the FTE enrollment of one-seventh of the workforce at any point in time. In the U. S. in one year this could be the equivalent of 20 to 28 million additional FTE in postsecondary

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education. Projected globally, it could mean more than 100 million learners seeking higher education access and opportunities by the year 2000. (p. 1)

The U. S. Army, an active element in today's information-age work force, is challenged to train the soldier of today to perform in a digital environment. In addition to leadership and problem-solving skills, today's soldier needs an understanding of advanced technologies and their capabilities. Consequently, the Army encourages soldiers and their family members to engage in continuous education. Non-traditional students who attend the universities within the Texas A&M University System as full-time or part-time students are also part of today's information-age work force. If the projections described by Dolence and Norris (as cited by Sherron and Boettcher, 1997) are correct, "every information-age worker will require the equivalent of four college credits a year, which translates to approximately four and a half weeks of dedicated learning annually or forty-five minutes of learning every work day" (p. 1). The Ft Hood experience suggests that the projections described by Dolence and Norris are, if anything, conservative.

If higher education institutions are to meet the educational needs of today's information-age work force there will be a significant impact on resources. Some of the resources that will be needed include faculty, student support systems, buildings, technology, and access to library and student support services from a distance. What kind of potential impact is indicated by these statistics? Davis and Botkin (as cited by Sherron and Boettcher, 1997) show that "formal budgeted employee education grew by 126 million additional hours in 1992; an equivalent increase in growth in the usual higher education models would have required thirteen new Harvards" (p. 1).

Higher education institutions can choose to look for innovative, creative, and effective ways to meet these educational needs. Distance learning in the form of video-teleconferencing courses and online courses are two possible options. Higher education also has the option of choosing not to try to attract this market and to allow industry to meet the need with their own institutions such as Disney University, Motorola University, Hewlett-Packard University, and McDonald's Hamburger University. There are also other models such as the Phoenix University, the Mind Extension University, and the Western Governor's University who will be glad to meet the educational needs of today's information-age worker.

Ft Hood and the Texas A&M University System have elected to take an initial step toward meeting these challenges through a combination of traditional classroom course delivery supplemented with course delivery via distance learning. This decision has implications and needs for both Ft Hood and the universities involved.

Ft Hood—Goals and Vision. III Corps and Ft Hood is committed to ensuring that every soldier has the education and training needed to achieve professional excellence. Additionally, the command supports efforts to ensure family members and retired personnel have the opportunity to achieve their personal and professional goals. To ensure students had a facility capable of receiving modern instruction, Ft Hood opened the Oveta Culp Hobby University Center in December 1996. The Center, devoted to the delivery of education and training programs, houses two classrooms with video-teleconferencing systems connected to the Trans-Texas Videoconferencing Network. In addition, Ft Hood provides computers, internet access, and video tape players in its library and Army Learning Centers.

The next challenge is to ensure that the Soldier Development Center scheduled for construction in 1999 will incorporate the telecommunications assets necessary for access to a wide variety of educational and training opportunities. The Soldier Development Center will house approximately 80 classrooms and six computer labs. Because distance education shows great promise, every classroom will be capable of receiving distance education programs. Distance learning opens up the world of education to soldiers and their family members. Ideally, this will enable soldiers and family members to enroll in the institution of their choice and complete degree programs with minimal interruption due to duty requirements or moving. By decreasing the number of institutions the average soldier utilizes and reducing the time it takes to earn a degree, the Army will increase the effectiveness of education programs while decreasing costs.

Tarleton State University. In January 1994, at the invitation of III Corps and Ft Hood, Tarleton State University began offering courses leading to the Master of Business Administration (MBA) degree at Fort Hood. The Texas Higher Education Coordinating Board subsequently provided approval for all of the coursework leading to the MBA degree to be provided on-site at

Ft Hood. In an effort to effectively meet the educational access needs of the military, an eight-week format was selected for delivery of the course work. Faculty from Tarleton's campus in Stephenville would drive to Ft Hood on Fridays where they would teach for two hours on Friday evening, spend the night in Killeen, and teach an additional four hours on Saturday before returning to Stephenville.

In January 1995 Ft Hood received video-teleconferencing equipment that would make it possible for them to connect with the Tarleton State University campus in Stephenville via Switch 56 phone service. Since then undergraduate and graduate courses have been delivered by Tarleton State University faculty via video-teleconferencing equipment to soldiers and their family members at Ft Hood. In August 1996 Ft Hood became affiliated with the Trans-Texas Video Network (TTVN) and expanded their opportunities to receive course work via distance learning.

Texas A&M University System. Since January 1995, Texas A&M University has offered two Engineering review certification courses delivered via distance learning. In January 1997, Texas A&M University began delivery of courses leading to the Master of Science Life Cycles Engineering—Operations Management interdisciplinary degree program designed for delivery by distance learning. To date nine courses have been offered.

The Texas A&M University System has made a strong commitment to the development and delivery of quality distance education courses. An example of the System's expansion from the traditional classroom to electronically linked classrooms can be seen in the Trans-Texas Video Network (TTVN) operated by the Texas A&M University System. Begun in 1990 with 12 sites, the TTVN scheduled two academic courses in the 1990-1991 academic year. In the 1996—1997 academic year, 180 academic courses were delivered over the TTVN to 94 sites. (Trans-Texas Video Network, 1997a; Trans-Texas Video Network, 1997b)

The Army Distance Learning Plan—Where are We Going?

The downsizing of the Army in the late 1980's led to an analysis of the way in which soldiers were trained and the most effective use of resources. As Dr. Millie Abell stated in her paper, "U.S. Army Training and Doctrine Command Distance Learning Studies," "...this economic contraction is occurring at a time when, despite the Army's downsizing, an increasing demand is being placed on its training base. A major concept investigated by TRADOC's Futures Training Division was distance learning, ..." Subsequently, pilot courses were developed to determine the economic feasibility and effectiveness of training using distance learning media. Ft Hood began participating in the pilots in January 1995.

In April 1996 the Army Distance Learning Plan was released by the U.S. Army, Training and Doctrine Command. (URL—http://www-dest.monroe.army.mil) The program outlines the development of courseware and the fielding of distance learning hardware. It also provides distance learning classrooms equipped with video conferencing systems, and computers with internet access for every Army installation. Eventually, the Army plans to convert 525 courses to synchronous and asynchronous modes of delivery. Although the media used to deliver the courses is determined by its suitability to the subject matter and training design, video-teleconferencing is expected to be used approximately 60 percent of the time.

To date Ft Hood has participated in pilots using video-teleconferencing, liveboards, internet, internet chat rooms and netmeeting, and e-mail. In addition, VHS cameras have been used to send real time images of soldiers working on equipment to subject matter experts at other locations. Thus, the value of distance learning for hands-on training is also being tested. Soon desktop conferencing will be added to the options available to educators, trainers and students. The program is dynamic and evolving. It depends on high quality, large bandwidth telecommunications capabilities.

As the program evolves, its importance to education has become increasingly apparent. At Ft Hood alone, the three Army Distance learning classrooms now available are programmed to expand to 32 classrooms by the end of 2008. The potential for the distribution of education programs to a world-wide audience opens up education possibilities for soldiers and their family members that were not possible in the past. Consequently, colleges and universities on or close to military installations are beginning to develop programs for delivery over the Army network.

Soldiers are eagerly looking forward to increased opportunities with fewer frustrations in their effort to achieve degree completion.

Educational Needs of the Information Age Workers

Simply stated, educational needs of the information-age workers are continuous. Wilson (1997) proposes that, "The old paradigm of discrete educational experiences is being replaced by a new paradigm of 'Continuous Education' " (p. 12). He illustrates this statement with a quote from Christopher Galvin, president of Motorola, "Motorola no longer wants to hire engineers with a 'four-year degree.' Instead they want employees with a '40-year degree' " (p. 12).

Information-age workers may also be a diverse group in several ways. Yet when examined closely, the needs of the information-age worker are really similar to adult learners of the past. Consider the students described by Chickering (1976) below:

> Sarah, 20, has been working with teenage addicts in a drug treatment center. She dropped out of a four-year college when she found the course requirements and classroom work incompatible with her educational needs, although she's not really certain just what she wants to do.
>
> Dianne, 37, has over 200 credit hours in higher education from institutions in the U.S., Jamaica, the West Indies, and the British Isles. She is an R.N. and a midwife who is developing curricula for Licensed Practical Nurse programs to upgrade hospital personnel. Eventually she wants to direct such a program.
>
> Alan, 43, has taught electronics for 17 years. He has 70 credits in English, math, social science, and physics, and a publisher's contract for a textbook which would be 'the culmination of 20 years of work and study in the electronics field.' He wants to pursue studies which would help him do the research and writing necessary to complete his book.
>
> Harry, 47, is manager of an internal audit department of a large savings bank. He was 22 years of business experience as well as an A.S. degree in business management and wants to complete a B.S. degree in finance interrupted years ago.
>
> Charles, 69, finds retirement time dragging. He wants to develop his photography hobby to the point where he might do professional work and start a small business. (pp. 6-7)

Each of these students, described 28 years ago, could mirror any number of today's information-age workers. Each has a specific educational need or goal. Most have family commitments that are likely to tie them to a particular geographic area. Most are unlikely to be able to quit work in order to become full-time students. Each is self-motivated. Each will pay a price, not only in monetary terms but also in terms of lost family time or lost recreational time, to pursue these educational goals.

Today's information-age workers have a variety of educational choices that differ from their predecessors. Correspondence courses as a form of distance learning have been available for over 200 years. Today's distance learning courses are available in several different forms and are more likely to mirror critical components of the face-to-face environment found in the traditional classroom. Yet, some of the same characteristics required of yesterday's successful adult learner are also found in today's successful distance learning student. Egan (1997) reported that "to successfully complete an independent learning program, you need to be a self-disciplined and self-motivated student" (p. 46).

> Sherron and Boettcher (1997) reported that,
>
> distance learning programs have also provided options for individuals who desire to combine work and learning experiences, and for those individuals who decide to return to school later in life. Many of these people may have demanding job and family responsibilities and find that the only way they can complete higher education degree programs is through distance education. Students who use distance education do so not necessarily because they prefer it to on-campus instruction, but because it provides a way for them to reach their personal goals despite constraining personal circumstances. (p. 2)

While many distance learning students might enjoy completing their educational goals in a traditional classroom, they may have other priorities, such as family commitments and full-time jobs at geographic locations that prevent this. If they can meet their goals through distance learning classes that are learner-centered and interactive, they may be quite satisfied with these educational experiences and feel their educational needs have been well met. Higher education may also find in the process that they have met the educational needs of a student market they had not been attracting in the past.

What will be required for higher education to meet the needs of these information-age workers? One strategy being selected by universities like the University of Phoenix, the Mind Extension University, and the Western Governors University, is to change the status quo. Terms such as online courses, no geographic boundaries, emphasis on outcomes rather than inputs are frequently heard when these universities and their programs are discussed. Chris Dede (as cited by Kearsley, 1996) has proposed a fundamental problem in higher education today,

> we are still trying to employ 19th century pedagogical ideas in the 21st century. Very few of today's educators (teachers and administrators) have any first-hand experience with distance learning or technology, and almost none have a deep enough understanding of either to accomplish the kind of profound changes Dede describes. (p. 56)

One university president responded to a Fortune 500 CEO who suggested that higher education was overly reluctant to change by stating, "our stability means that there was a university long before your company existed and will be a university long after your company is gone" (Wilson, 1997, p. 15). The question is, "Will the ivory tower survive the electronic village?" Wilson takes a positive view and responds by stating,

> If the last few decades have been marked by universities all trying to hew to the same mold of the comprehensive research university, the next few will see a remarkable differentiation based upon the core strengths of each. It may be the end of 'teaching,' but it is far from the end of learning at the university. (p. 15)

The challenge for today is to create the university of tomorrow that is needed by tomorrow's students. That certainly won't be accomplished by eliminating what is good, but perhaps we may redefine how we design and deliver education and distance may become a key component of that redefinition.

Meeting Instructional Needs of the Information-Age Workers through Distance Learning

In the process of providing high quality distance learning opportunities, it is important to assure that courses provided by distance learning are equal to or better than courses provided in the traditional classroom format.

The results of several studies, designed to measure learning outcomes of students enrolled in distance learning courses, have shown consistently that there is no significant difference in the amount of learning that occurs in a distance learning classroom as compared with the amount of learning that occurs in a traditional classroom. Numerous studies designed to evaluate the effectiveness of student performance in distance education courses have shown that, "the general conclusion reached by these investigators is that students taking televised courses at remote sites, in very large part, perform as well as or better than their traditionally-taught counterparts" (Biner, Welsh, Barone, Summers, & Dean, 1997, p. 33). The Ft Hood experience echoes those findings for soldiers enrolled in education programs as well as Army training programs.

Challenged to ensure that soldiers receiving training by distance learning perform as well as those who attend courses in a traditional environment, the Army has set consistent entry parameters and compared the achievement of both groups. The criteria used to select soldiers for training is identical for resident and distance learning courses. Soldiers in resident and distance learning versions of the same course are trained to the same set of standards and receive the same certification. Courses are altered only to make the best use of the distance learning media. Effective use of the media is considered essential to a successful learning experience.

The experiences of soldiers at Ft Hood have been extremely positive. In several courses soldiers in the distance learning classes have out-performed their resident course counterparts.

The normal graduation rate from the Cannoneer Non-Commissioned Officer course is 80 percent; in the first distance learning effort every soldier graduated. Another example is the Battle Staff Non-Commissioned Officer's Course. The United States Sergeants Major Academy reported a graduation rate of 87.4 percent for resident course attendees during fiscal year 1997. By comparison, the graduation rate for students participating in the first two iterations of the distance learning version of the course was 91 percent.

Student satisfaction is as important to the long-term success of the Army's distance learning program as student achievement. Soldiers are satisfied with training when they believe they can do the job. Anecdotally, students complain about taking TV courses. Consequently, the Army's Operations Research and Analysis Division is analyzing student perception surveys administered following each segment of each course. On the student perception survey for the Cannoneer course, 100 percent of the students said, "The course should have been presented face-to-face." In another short course designed to address a complex equipment testing procedure, 75 percent of the students said, "I found the exercises valuable in helping my understanding of the concepts discussed and how to apply them."

One cannot dismiss negative comments made by students in passing. Their attitude is also important. However, in a recent course, the same soldier that complained at the beginning of the course commented at the end that, "...it was pretty good after all." Perhaps the most telling evaluation is that soldiers involved in education programs do not differentiate when enrolling between those courses taught in the traditional environment and those taught by distance learning.

There are undoubtedly many reasons for the success of distance learning. In end-of-course evaluations, students consistently indicate their belief that they learned as much in the distance learning class as they would have in a traditional classroom. Soldiers in the military distance learning courses often cite the additional time at home with their families as being a source of satisfaction. Time spent with family is precious to soldiers who are routinely away from their home for at least one-third of each year. Being able to access the education and training they need for personal and professional development while maintaining a home life is a strong motivator. As Clark found, "the content of the instruction, the method used to promote learning, and the involvement of the learner in the instructional experience were what influenced learning" (Simonson, 1997, p. 104).

Recognizing Demographic Differences of Distance Learning Students. In planning for effective distance learning courses, differences in student demographics need to be considered. In distance learning courses taught between Tarleton State University and Ft Hood, there appear to be minimal differences between students at each site. The majority of students at both sites are pursuing full-time careers and are enrolled in the graduate program on a part-time basis. The military students do have the added pressure of being reassigned which causes them to move through the program at a faster pace. There may be a few more full-time MBA students enrolled at the Tarleton site in Stephenville, but there are several similarities between the two sites at the graduate level.

In undergraduate classes there may be a more noticeable difference between the two groups. For example, undergraduate courses on the Tarleton campus in Stephenville are usually composed of predominantly traditional college students (i.e., age 19-24, full-time students who if they are working are not working in the career they plan to pursue upon graduation). Undergraduate courses at Fort Hood are more likely to be composed of predominantly non-traditional college students (i.e., age 24-40+; part-time students with demanding full-time careers that require time, attention, energy, and commitment). Each group deserves and needs to have attention given to their unique needs in such a way that both have an equal opportunity to receive a quality educational experience.

Ft Hood soldiers and family members are highly mobile. Their varied experiences have made them aware of the importance of preparing for the future through education. They are highly motivated learners who articulate their needs and expect education and training opportunities. Knowing that their job subjects them to unexpected curtailment of their educational opportunities often affects their education decisions. Because their window of education opportunity is limited, their expectations in terms of program development, accessibility, flexibility, and student services are high. They enter each course with a level of determination that the traditional student may not relate to.

Being concerned about meeting the education needs of groups such as these who have somewhat different demographic characteristics is the first step to addressing these needs effectively. Certainly there are some very real differences that need to be addressed during the educational process. Yet industry is combining groups. "We now have institutions such as Disney University, Motorola University, Hewlett-Packard University, and McDonald's Hamburger University—all of which have evolved to meet the needs of interdisciplinary, niche learning markets" (Sherron and Boettcher, 1997, p. 2).

A review of distance learning literature related to site differences, a conversation with a distance learning pioneer from the University of Wisconsin-Extension, and a question placed on a distance learning list serv uncovered some interesting information. First, the demographic differences noted between the Stephenville and Ft Hood sites are not unique. Other distance learning sites in other distance learning programs may have students at different sites with varied demographic characteristics as discussed by Besser and Bonn, 1997; Biner et al., 1997; and Walling, 1996.

Second, a telephone interview was conducted with Ms. Mavis Monson who works with distance learning at the University of Wisconsin-Extension. She indicated that the differences can, in fact, be complimentary. She described a course where they had taught Japanese via two-way interactive audiographics. The on-campus site was composed mainly of traditional undergraduate students. The off-campus site was composed primarily of graduate students who were learning Japanese to be able to read technical manuals they received with equipment. As the faculty member was able to emphasize and draw upon the unique strengths that each group had to offer, the two groups began to view each other more positively.

Third, a question about the impact of demographic differences between sites was placed on a list serv moderated from Penn State University (DEOS-L@LISTS.PSU.EDU). Dr. Lorne Parker, CEO and Founder of the Teletraining Institute, responded with the recommendation to focus on instructional design and course support. This advice is consistent with distance learning literature where the authors are encouraging distance learning instructors to use a learner-centered approach presented by Wolcott, (1996, p.23). Dr. Thomas Cyrs, Center for Educational Development at New Mexico State University in Las Cruces, New Mexico, encourages distance learning instructors to focus on visual thinking, interactivity, and structured handouts. Susan Powers (1997), Indiana State University, believes that,

> The power in these three words, interactive—distance—and learning, is the energy and potential that exists when they are used all together. Interactive distance learning has the capability to bring new and innovative learning experiences to our current students as well as to those we could never before reach. (p. 93)

According to DeVries, "Whether interactivity is occurring in a traditional classroom or in a distance education setting, the learner's perception of and satisfaction, with interactivity are key determinants of effectiveness and quality" (1996, p. 180). Kaufman, writing in response to an article by Chris Dede, emphasizes that interactive modes of delivery are important and 'edutainment' can be powerful" (1997, p. 53). Michael Moore encourages distance learning instructors to first consider both the learners and the content (1996, p. 1). Each of these writers, in their own way, are stressing the importance of an instructional design format and focus that is learner-centered.

In 1980 Knefelkamp wrote that, "The integrity of American higher education is grounded firmly in its responsiveness to new and diverse populations. Each major sociological expansion in society has resulted in new students entering the college population and influencing the curriculum and goals of higher education. At no previous time, however, have we been faced with such overwhelming heterogeneity in our student body. We have a greater diversity of age, race, sex, intellectual ability, and academic preparation than ever before. The complexities this diversity brings to the average classroom are almost overwhelming" (p. 15). But higher education has survived and continued to strive to meet the needs of the students. The challenges offered by distance learning are no different from those described by Knefelkamp and can also be met effectively.

In 1987 Chickering and Gamson identified seven good practices in undergraduate education:

- Encourages contacts between students and faculty.

- Develops reciprocity and cooperation among students.
- Uses active learning techniques.
- Gives prompt feedback.
- Emphasizes time on task.
- Communicates high expectations.
- Respects diverse talents and ways of learning. (p. 2)

All of these are practices that can be applied effectively in distance learning as well as in the traditional classroom. Because of the distance and technology involved, faculty may need to prepare differently but they can expect their students will be able to learn effectively. Dr. Thomas Cyrs has stated that, "It takes about five hours to plan and prepare for every one hour spent in teaching a video-teleconferencing class." It is this kind of intensive planning and preparation that will result in video-teleconferencing students not only learning but also enjoying the experience.

Instructional design matters.

Faculty Training. Ft Hood has learned from experience that the instructor is the key to the success of a course. The most important factor in determining the success of a distance learning course is the instructor's understanding of the capabilities and ability to use the media to best advantage. The Army insists that instructors attend a one-week Instructor Video Teletraining Course emphasizing development of training materials for delivery via VTT. Instructors developing courses for asynchronous media attend more lengthy training programs. In addition program managers at Ft Hood have also received training in the development and evaluation of distance learning. Thus, they can evaluate and assist with the delivery of distance learning as the distance learning program develops. When discussing delivery of college courses by distance learning, Ft Hood routinely inquires into the training instructors receive. Their ability to develop course materials and familiarity with the capabilities and operation of the equipment is paramount to the success of the class.

Tarleton State University, like Texas A&M University, has accepted the responsibility to assure that the quality of distance learning courses provided equals that of course delivery provided in the traditional classroom format. Tarleton is working to meet this responsibility in several ways.

First. Dr. Dennis P. McCabe, President of Tarleton State University, established a Center for Instructional Technology and Distance Learning at Tarleton in September 1996. One of the goals of this Center is to provide faculty training in the design and delivery of distance learning instruction. The Center will also assist the faculty member in the conversion of their course materials to a format they can use more easily in a distance learning classroom (e.g., PowerPoint™ slides instead of overhead transparencies). A second goal of the Center is to provide classroom environments where technology can become as transparent as possible and the faculty can focus on teaching and learning.

Second, Tarleton faculty are encouraged to consider unique student needs in the distance learning environment and look for ways to meet those needs effectively. E-mail, list servs, and the Internet are options for encouraging communication between faculty and students, as well as among students at both sites. Faculty may elect to place their course syllabus, class handouts, lecture notes, or test review materials on their home page. List servs are proving to be an excellent way to build community between remote site students and those students on the local campus. E-mail communication between faculty and students can be answered at the convenience of each and many times more quickly than by phone. Using technology effectively to support learner-centered instruction creates the "high tech/high touch" environment that Dr. Timothy Davies stresses as critical to effective distance learning (1997, p. 68). Perhaps all of these contributions are summed up by Chris Dede, "The most significant influence on the evolution of distance education will be not the technical development of more powerful devices, but rather the professional development of wise designers, educators, and learners." (1996, p. 34).

Technical Support. Technical support is available for Tarleton's distance learning faculty through several sources. First, each classroom on the Stephenville campus has a direct phone line to College Station. This enables the faculty member to place the equivalent of a local call to the TTVN Help Desk any time they have technical questions. Second, each classroom on the Stephenville campus contains a phone with a local phone line connection. This makes it easy

for the faculty member to call personnel in the Center for Instructional Technology and Distance Learning or the Telecommunications Department. Personnel in both areas will help resolve technical needs upon request. Personnel in the Center for Instructional Technology and Distance Learning and the Telecommunications Department connect the distance learning classrooms daily and check to make sure that the equipment is operational and ready for use before time for classes to begin.

A trained technician is available whenever classes are offered in distance learning classrooms at Ft Hood. The University Center technician opens and closes each class, dividing his time between the two distance learning classrooms and the computer lab. Each classroom has telephone service with access to long distance. Telephone numbers for TTVN and the distance learning classrooms at each University are listed. In addition there is a FAX and VCR. Students often volunteer to learn the rudiments of camera operation and assist the distant instructor.

Conclusion

Sherron and Boettcher (1997) reported that,

> Education across all segments of higher education—undergraduate, graduate, professional, certification, and lifelong learning—is a growth market. To meet these needs and take advantage of the opportunities occurring, higher education institutions must fund, design, and implement new flexible learning programs. The needs are great, and the traditional models are no longer the only appropriate delivery mechanisms. How will higher education in the information-age meet this demand of the information worker for professional and lifelong learning? Is distance learning the answer? (p. 2)

Chris Dede (1996) has suggested that,

> Today, distance education is primarily used in selective situations to overcome problems of scale (not enough students in a single location) and scarcity (a specialized subject not locally available). Such instruction often has been seen as 'half-a-loaf' pedagogy: better than nothing, but not as good as face-to-face teaching. However, the global marketplace and emerging information infrastructures are changing this situation. Educators must help all students become adept at distanced interaction, for skills of information gathering from remote sources and of collaboration with dispersed team members are as central to the future American workplace as learning to perform structured tasks quickly was to the industrial revolution. Also, by increasing the diversity of human resources available to students, distributed learning can enhance both equity and pluralism in preparation for competition in the world marketplace. Virtual classrooms have a wider spectrum of peers with whom learners can collaborate than any local region can offer and a broader range of teachers and mentors than any single educational institution can afford. (p. 30)

For both III Corps and Fort Hood and the Texas A&M University System, quality distance learning is being considered as part of the answer.- Army students are adult learners who are goal-oriented and focused on attaining challenging objectives. Distance learning works because it expands opportunities to a goal-oriented, self-motivated population of adults. The Army climate encourages students to embrace change. The future of the Army demands soldiers accept and become more effective in using technology. The Army is convinced that distance learning will have positive education and training results while reducing costs, reducing the amount of time soldiers must be separated from their families, and injecting predictability in soldier's lives. Results consistently show students achieve at a higher level and enjoy greater satisfaction when programs of study compliment their personal and professional goals.

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